UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,128	06/12/2006	Toru Kitamura	04208.0228	8561

22852 7590 06/08/2007

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER
LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

EXAMINER
KUNDU, SUJOY K

ART UNIT	PAPER NUMBER
2863	

MAIL DATE	DELIVERY MODE
06/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/563,128	KITAMURA ET AL.	
	Examiner	Art Unit	
	Sujoy K. Kundu	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *50-100* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *50-100* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *06/12/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 50-100 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims are directed towards reliability information, which is not clear and indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 50-100 are rejected under 35 U.S.C. 102(e) as being anticipated by Sato et al. (US 2006/0031014 A1).

With regards to Claim 50, 66-69, 82, 84-86, 97, 99, Sato teaches an azimuth measurement device comprising:

2- or 3-axis geomagnetism detection means for detecting the geomagnetism (Abstract, Paragraph 4);

output data acquisition means for acquiring repeatedly a predetermined number of times or more, either the 2-axis output data at the time when the direction of the geomagnetism detection means changes while keeping the 2-axis detecting directions on a predetermined plane, or the 3-axis output data at the time when the direction of the geomagnetism detection means changes in the three-dimensional space (Paragraph 11);

reference point estimation means for determining a reference point either on 2-axis coordinate space composed of the 2-axis output data or on 3-axis coordinate space composed of the 3-axis output data thereby to estimate the coordinates of the reference point by a statistical method so that the dispersion of the distances from the 2- or 3-axis output data group obtained by the output data acquisition means, to the reference point may be minimized (Paragraph 20);

offset information calculation means for calculating the offset information of the output data of the geomagnetism detection means on the basis of the coordinates of the reference point by the reference point estimation means (Paragraph 12 and 18); and

first reliability information calculation means relating to the reliability of the offset information calculated by said offset information calculation means (Paragraph 12 and 18),

wherein the acceptance threshold value at the time of calculating said offset information is gradually tightened on the basis of the basis of the first predetermined number of the recent first reliability information calculated by said first reliability information calculation means (Paragraph 29).

With regards to Claim 51 Sato teaches an azimuth measurement device, further comprising second reliability information calculation means relating to the reliability of the offset information from the output data acquired latest, wherein an acceptance threshold value at the time of calculating said offset information is loosened, in case the reliability deteriorates, on the basis of second reliability information of the recent second predetermined number calculated by said second reliability information calculation means (Paragraph 29).

With regards to Claim 52 Sato teaches an azimuth measurement device, wherein said second reliability information is the distance from the 2- or 3-axis output data obtained by said output data acquisition means, to the reference point (Paragraph 29).

With regards to Claim 53 Sato teaches an azimuth measurement device, wherein said second reliability information is calculated from a geomagnetic inclination angle information calculated from the 3-axis output data obtained by said output data acquisition means (Paragraphs 29-34).

With regards to Claim 54 Sato teaches an azimuth measurement device further comprising first and second external output means for outputting said first and second pieces of reliability information to the outside (Figure 4, Paragraph 145-146).

With regards to Claim 55 Sato teaches an azimuth measurement device wherein not only the acceptance threshold value at the time of calculating said offset information but also the data measurement conditions and/or the offset information calculation conditions are changed (Paragraph 12 and 18).

With regards to Claim 56 Sato teaches an azimuth measurement device, wherein said second reliability information is the distance from the 2- or 3-axis output data obtained by said output data acquisition means, to the reference point (Paragraph 12 and 18).

With regards to Claim 57 Sato teaches An azimuth measurement device wherein said second reliability information is calculated from a geomagnetic inclination angle information calculated from the 3-axis output data obtained by said output data acquisition means (Paragraph 12 and 18).

With regards to Claim 58 Sato teaches an azimuth measurement device, wherein said data measurement condition value and/or said offset information calculation condition contains a measurement time interval (Paragraph 12 and 18).

With regards to Claim 59 Sato teaches an azimuth measurement device, wherein said data measurement condition value and/or said offset information calculation condition contains number of data for calculating the offset information (Paragraph 12 and 18).

With regards to Claim 60 Sato teaches an azimuth measurement device, wherein said data measurement condition value and/or said offset information calculation condition contains first and/or second predetermined number (Paragraph 19-21).

With regards to Claim 61 Sato teaches an azimuth measurement device, further comprising: reliability information calculation means for calculating third reliability information from said data measurement condition value and/or said offset information

calculation condition; and third external output means for outputting said third reliability information from said third reliability information calculation means (Paragraphs 29-34).

With regards to Claim 62, 76, 81, 92, 98 Sato teaches an azimuth measurement device wherein said reliability information is calculated from the dispersion of the recent reference point (Paragraphs 29-34).

With regards to Claim 63, 77, 93, 94 Sato teaches an azimuth measurement device wherein said first reliability information is calculated from the dispersion of the data of said closes 2- or 3-axis output data group (Paragraphs 29-34).

With regards to Claim 64 Sato teaches an azimuth measurement device further comprising detection means for detecting a specific event, wherein the acceptance threshold value at the time of calculating the offset information in case said event occurs are changed (Paragraph 309).

With regards to Claim 65 Sato teaches an azimuth measurement device wherein said specific event is a specific operation by an operator (Paragraph 5).

With regards to Claim 70, 87 Sato teaches an azimuth measurement device further comprising a detection section for detecting the magnetic environment inside and outside of the azimuth measurement and the change in said magnetic environment (Paragraph 4), wherein said acceptance threshold value is loosened in case said detection section detects that said magnetic environment has changed (Paragraph 12).

With regards to Claim 71, 88 Sato teaches an azimuth measurement device wherein said detection section detects that the environment has changed, in case the

data acquired by said output data acquisition means exceeds a predetermined range (Paragraph 12).

With regards to Claim 72, 89 Sato teaches an azimuth measurement device further comprising:

event detection means for detecting either the change in the environment of the azimuth measurement device or the operation of the operator, wherein said acceptance threshold value is changed in case said event occurs (Paragraph 161).

With regards to Claim 73, 90 Sato teaches an azimuth measurement device wherein said environment change is a temperature change (Paragraph 161).

With regards to Claim 74, 91 Sato teaches an azimuth measurement device wherein at least one of said measurement parameters and said calculation parameters are changed, when said acceptance threshold value is changed (Paragraph 12 and 18).

With regards to Claim 78, 95 Sato teaches an azimuth measurement device wherein said measurement parameters contain a measurement interval (Paragraph 18).

With regards to Claim 79, 80, 96 Sato teaches an azimuth measurement device wherein said measurement parameters contain the variation in data, wherein said variation is the difference between the output data acquired by said output data acquisition means and the data selected by said reference point estimation means, and wherein said reference point estimation means selects the data, of which said variation is at a predetermined value or higher (Paragraph 2, 5, 18).

With regards to Claim 83, 100 Sato teaches an azimuth measurement device wherein said geomagnetism detection means acquires 3-axis output data, further comprising:

information acquisition means relating to the posture angle of the azimuth measurement device; and geomagnetic inclination angle information calculation means for calculating geomagnetic inclination angle information from said output data, said offset information and the posture angle, wherein said azimuth calculation means calculates the azimuth of the device from said output data, said offset information, and the information relating to said posture angle, and wherein the index of reliability of the azimuth to be calculated is calculated from the value of said geomagnetic inclination angle information (Paragraph 4, 41, 173).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sujoy K. Kundu whose telephone number is 571-272-8586. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on 571-272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sujoy Kundu/
Sujoy Kundu
June 6, 2007
Assistant Examiner – AU 2863

BRYAN BUI
PRIMARY EXAMINER